

Patent

Attorney's Docket No. 032287-001

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2/27/01
DS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of) **Box AF**
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Johann PFEIFFER) **Group Art Unit: 2664**
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Application No.: 08/981,519) **Examiner: Steven Nguyen**
)
Filed: March 17, 1998)
)
For: **METHOD OF BI-DIRECTIONAL**)
DATA TRANSMISSION OVER A)
TWO-WIRE LINE)

REQUEST FOR RECONSIDERATION

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

In response to the Final Office Action dated October 25, 2000, Applicant respectfully requests reconsideration and allowance of the present application based upon the following arguments. Claims 2-10 remain pending in the application.

The Examiner indicated that a copy of a form PTO-1449 listing the documents included in an Information Disclosure Statement filed on June 3, 1998 could not be located in the file wrapper. Accordingly, another copy of this document is attached herewith. Applicant respectfully requests that an initialed copy of this form PTO-1449 be returned with the next official communication.

Claims 2, 8, and 9 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,619,505 (Grude) in view of U.S. Patent No. 4,841,521 (Amada et al., hereafter referred to as "Amada"). Claim 3 was rejected under 35 U.S.C. 103(a) as being

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unpatentable over Grude and Amada, and further in view of U.S. Patent No. 4,144,522 (Kageyama). Claims 4-5 were rejected under 35 U.S.C. 103(a) as being unpatentable over Grude and Amada, and further in view of U.S. Patent No. 3,798,608 (Huebner). Claims 6 and 10 were rejected under 35 U.S.C. 103(a) as being unpatentable over Grude and Amada, and further in view of U.S. Patent No. 5,625,651 (Cioffi). Claim 7 was rejected under 35 U.S.C. 103(a) as being unpatentable over Grude and Amada, and further in view of U.S. Patent No. 5,151,896 (Bowman). These rejections are respectfully traversed.

The present invention is directed to the bidirectional transmission of data via a two-wire line. In an exemplary embodiment, transmitted data and received data are modulated and demodulated by discrete multitone (DMT) modulation means, and separated by a time division multiplex (TDM) operation. With a TDM operation, a time frame of data transmission is subdivided into a number of time slots, where one direction of data transmission is assigned a great majority of the time slots and the other direction assigned the remainder. In such a system, processing power is directed to either the transmitting or receiving of data at any given time and the same line attenuation is used in both directions of transmission.

TDM features are encompassed by Applicant's claim 8 combination, which recites a method for bidirectional data transmission via a two-wire line and includes, among other features, modulating and demodulating the digital data using discrete multitone modulation and separating digital data to be transmitted and the digital data to be received by time division multiplex operation.

None of the cited documents teach or suggest Applicant's claim 8 combination.

Grude discloses a system for producing and recovering an ordered data stream using a DMT transmitter and a DMT receiver. As shown in Fig. 8, communication system 100 operates with a four wire infrastructure, where a plurality of secondary sites 104-108 are coupled to a primary site 102 via an inbound low pass transmission path 148 and an outbound low pass transmission path 150 (col. 8, lines 16-21). Both paths 148 and 150 are in the form of twisted-pair copper wires (i.e., two-wire lines). During one way data transmission between primary site 102 and one of the secondary sites 104-108, carrier channels are only allocated on path 150 (i.e., a single two-wire line). During two way data transmission, channels are allocated on both paths 148, 150 (i.e., two two-wire lines). System 100 does not in any situation utilize bidirectional data transmission on a single two-wire line, but instead uses two separate twisted-pairs for two-way data transmission.

Grude does not disclose the use of a time division multiplex to separate digital data to be transmitted and digital data to be received on a single two-wire line. In fact, the cited portion of Grude expressly teaches away from this concept, as time-dividing data transmission frames would be completely unnecessary in a system using separate lines to transmit and receive data. Grude therefore fails to teach or suggest Applicant's claim 8 combination.

Although not cited in the Official Action, Applicant notes that communication system 160 shown in Fig. 9 of the Grude patent does appear to describe data transmission in two directions on a single two-wire line. However, system 160 includes the use of echo cancellation, one of the complex and expensive operations that the claimed invention is

described to avoid (see page 2, lines 1-28 of the present application's specification).

System 160 does not utilize time division multiplex to separate digital data on a two-wire line.

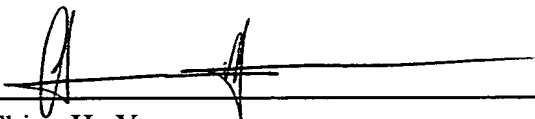
In order to compensate for Grude's failure to disclose the separation of transmitted data on a single two-wire line using time division multiplex, the Examiner asserts that the teachings of Amada would have been an obvious remedy of these deficiencies. Amada discloses a system for bidirectionally transmitting data between terminal stations, in which each transmission period is divided into a plurality of first time sections for relatively low speed data transmission and at least one second time section for relatively high speed data transmission (abstract, lines 1-6). However, because Grude expressly teaches away from the concept of using a time division multiplex to separate digital data to be transmitted and digital data to be received on a single two-wire line, it would *not have been obvious* to one of ordinary skill in the art at the time of the invention to combine the teachings of Grude with the teachings of Amada, as there would have been no motivation for one to provide such a concept in the Grude system. Only Applicant's specification teaches or suggests such a combination.

For at least these reasons, claim 8 is allowable, and reconsideration and withdrawal of the rejection of claim 8 under 35 U.S.C. 103(a) is requested. Claims 2-7, 9, and 10 depend from independent claim 8 and are patentable at least for the reasons discussed above.

In light of the foregoing, the Applicant has addressed all issues raised in the Office Action and now respectfully submits that the Application is in condition for allowance. Favorable consideration on the merits and prompt allowance are respectfully requested. In the event any questions arise regarding this communication or the application in general, the Examiner is invited to contact Applicant's undersigned representative at the telephone number listed below.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By: 
Chien H. Yuan
Registration No. P-48,056

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620

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